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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,475	09/26/2000	Brian L. Hirman	PA1604	4314

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EXAMINER

LIU, SHUWANG

ART UNIT PAPER NUMBER

2634

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/670,475

**Applicant(s)**

HINMAN ET AL.

**Examiner**

Shuwang Liu

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2000.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 26 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2 and 9.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figures 5 and 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 1-8 and 12-17 are objected to because of the following informalities:

(1) In claim 1, line 5, insert - -and- - after "capacitance;"

(2) In claim 7, lines 3-4; change "inductance;

the ratio" to - -inductance, wherein the ratio- -; and

(3) In claim 12, line 5, insert - -and- - after "capacitance;"

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2, 3, 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not describe that a ratio of the inter-winding capacitance to the combined capacitance of the first intra-winding capacitance and the first capacitor is in the range of 0.75 - 1.25 or 0.99-1.01. The specification only teach that a "ratio of the inter-winding capacitance to the intra-winding capacitance is in the range of 0.75 - 1.25 and preferably in the range of 0.99-1.01" (pages 19-20).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

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Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 4, 6, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Drew (US 6,546,100, see IDS, paper# 9).

As shown in figures 2-4, Drew discloses a load coil, comprising:

(1) regarding claim 1:

a coupled inductor (42 and 44) having a first winding (42) having a first intra-winding capacitance ( $C_{ic}$ ) and a second winding (44) having a second intra-winding capacitance ( $C_{ic}$ ), the first and second windings wound about an inductor core (see figures), the first and second windings having an interwinding capacitance ( $C_w$ );

a first capacitor (46) disposed in parallel with the first winding and a second capacitor (48) disposed in parallel with the second winding for increasing the impedance of the load coil to certain signals above 4 kHz (abstract and column 1, lines 10-25).

(2) regarding claim 4:

wherein the first and second capacitors each have a capacitance in the range of 770-1290pF (column 2, lines 30-33).

(3) regarding claim 6:

wherein the certain signals above 4 kHz further comprise signals in the range of 25 kHz - 1.1 MHz (abstract).

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(4) regarding claims 9 and 10:

A load coil, comprising:

a first inductor (see figures) including a first winding (42) and a first core (see figures), the first winding having upstream and downstream ends (see figures) and a first intra-winding capacitance ( $C_w$ );

a second inductor (see figures) including a second winding (44) and a second core (see figures), the second winding having upstream and downstream ends (see figures) and having a second intra-winding capacitance ( $C_w$ );

a first capacitor (46) disposed between the upstream end of the first inductor and the downstream end of the second inductor to offset at least a portion of the first and second intra-winding capacitances for improving the impedance of the load coil to DSL-band signals (abstract and column 1, lines 41-48); and

a second capacitor (48) disposed between the upstream end of the second inductor and the downstream end of the first inductor to offset at least a portion of the first and second intra-winding capacitances for improving the impedance of the load coil to DSL-band signals (abstract and column 1, lines 41-48).

7. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Shenoi et al. (US 6,507,606, see IDS, paper # 9).

As shown in figures 4-5, Shenoi et al. discloses a DSL repeater for improving transmission of POTS band and DSL band signals over a local loop, the repeater comprising:

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an upstream signal amplifier (AMP-U) for amplifying upstream DSL signals;  
a downstream signal amplifier (AMP-D) for amplifying downstream DSL signals;  
and a load coil disposed in parallel with the upstream and downstream signal amplifiers  
for improving the transmission of POTS band signals over the local loop (column 7, line  
47-column 9, line 45).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all  
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable  
over Sheno et al. in view of Drew.

Sheno et al. discloses all of the subject matter as described above except for  
specifically teaching POTS, comprising a first inductor including a first winding and a  
first core, the first winding having upstream and downstream ends and a first  
intra-winding capacitance; a second inductor including a second winding and a second  
core, the second winding having upstream and downstream ends and having a second  
intra-winding capacitance; a first capacitor disposed between the upstream end of the  
first inductor and the downstream end of the second inductor to offset at least a portion  
of the first and second intra-winding capacitances for improving the impedance of the

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load coil to DSL-band signals; and a second capacitor disposed between the upstream end of the second inductor and the downstream end of the first inductor to offset at least a portion of the first and second intra-winding capacitances for improving the impedance of the load coil to DSL-band signals.

Drew, in the same field of endeavor, teaches all of the limitation as shown in figures 4 and 5 (see 102 rejection in section 6 above).

It would be desirable to provide a relatively flat frequency response in voice frequency band and a decrease in attenuation in the high frequency band (column 1, lines 41-48) by using the POTS of Drew. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the load coil of Drew to the repeater of Shenois et al. in order to a relatively flat frequency response in voice frequency band and a decrease in attenuation in the high frequency band. In so doing, the frequency response is important for providing ADSL type service on long line when the capability to provide POTS service on that line is to be maintained.

10. Claims 2, 3, 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dew.

Regarding claims 2, 3, 7 and 8, although Dew doesn't specifically disclose the ration of the inter-winding capacitance and intra-winding capacitance is in the claimed range, such limitation are merely a matter of design choice and would have been obvious in the system of Dew. Dew teaches the values of the interwinding capacitance and the intrawinding capacitance depends the value of the inductance, the gauge of



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wire used in the windings and their physical geometry. Furthermore, Dew teaches the capacitance of the loading coil effects the frequency response of the line. In order to provide a relative flat frequency response in the voice frequency band and a decrease in attenuation in the high frequency response for providing ADSL type service, one skilled in the art has to select required interwinding and intrawinding capacitances. The limitations in claims do not define a patentably distinct invention over that in Dew reference since both the invention as a whole are directed to decrease the attenuation in the high frequency. The values of the capacitances of the windings depend on the required application, so long as the impedance of the loading coil to a range of frequency meets the requirement. Therefore, to select the ratio of the interwinding capacitance and the intrawinding capacitance would have been a matter of obvious design choice to one of ordinary skill in the art.

11. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheno et al. in view of Dew.

(1) Regarding claims 13, 14 and 16, although Sheno et al. and Dew do not specifically disclose the ration of the inter-winding capacitance and intra-winding capacitance is in the claimed range, such limitation are merely a matter of design choice and would have been obvious in the system of Dew. Dew teaches the values of the interwinding capacitance and the intrawinding capacitance depends the value of the inductance, the gauge of wire used in the windings and their physical geometry. Furthermore, Dew teaches the capacitance of the loading coil effects the frequency

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response of the line. In order to provide a relative flat frequency response in the voice frequency band and a decrease in attenuation in the high frequency response for providing ADSL type service, one skilled in the art has to select required interwinding and intrawinding capacitances. The limitations in claims do not define a patentably distinct invention over that in Dew reference since both the invention as a whole are directed to decrease the attenuation in the high frequency. The values of the capacitances of the windings depend on the required application, so long as the impedance of the loading coil to a range of frequency meets the requirement. Therefore, to select the ratio of the interwinding capacitance and the intrawinding capacitance would have been a matter of obvious design choice to one of ordinary skill in the art.

(2) regarding claim 15:

wherein the first and second capacitors each have a capacitance in the range of 770-1290pF (column 2, lines 30-33).

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claim 1 is provisionally rejected under the judicially created doctrine of double patenting over claim 7 of copending Application No. 09/819,158. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: a coupled inductor, first intra-winding and second intra-winding capacitances, inter-winding capacitances (first and second capacitive elements in 09/819,158), and first and second capacitor as recited in claim.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

### ***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks


Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu  
Primary Examiner  
Art Unit 2634

June 26, 2004